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## Neighborhood social cohesion and depressive symptoms among Latinos: Does use of community resources for physical activity matter?

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### Abstract

**Background**—Greater neighborhood social cohesion is linked to fewer depressive symptoms and greater physical activity, but the role of physical activity on the relationship between neighborhood social cohesion and depression is poorly understood. The purpose of the study was to examine the effects of physical activity on the association between neighborhood social cohesion and depressive symptoms.

**Methods**—Multivariate logistic regression tested the moderation of self-reported leisure time moderate-to vigorous-physical activity (LTMVPA) and active use of parks or recreational facilities on the association between neighborhood social cohesion and depressive symptoms among 295 randomly selected Latino adults who completed a face-to-face interview.

**Results**—After adjusting for age, gender, and income, neighborhood social cohesion and depressive symptoms were inversely related (OR=0.8; 95% CI: 0.5–1.2). Active use of parks or recreational facilities moderated the association between neighborhood social cohesion and depressive symptoms but meeting the recommendations for LTMVPA did not. Latinos who reported active use of parks or recreational facilities and higher levels of neighborhood social cohesion had fewer depressive symptoms than peers who did not use these spaces.

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**Conclusions**—Future studies are needed to test strategies for promoting active use of parks or recreational facilities to address depression in Latinos.

### Keywords

Mental health; exercise; guidelines and recommendations; leisure activities; social environment; health promotion; immigrants

## INTRODUCTION

The Latino population in the U.S. is one of the largest and fastest growing, comprising 17% of the total population in 2012 and expected to increase to 31% by 2060.<sup>1</sup> Among U.S. Latino adults, approximately 12%, compared to 8% of non-Latino Whites, meet the criteria for depression (i.e., experience at least two depressive symptoms during the preceding two weeks).<sup>2</sup> The factors associated with the development of depression among U.S. Latinos are complex and several studies point to the importance of the built (i.e., physical) and social environments on mental health as posited by the ecological perspective. The ecological perspective directs attention to the relationship between individual and environmental determinants of health and related behaviors,<sup>3</sup> including perspectives specific to the U.S. Latino community.<sup>4</sup> To date, several neighborhood stressors and protective factors have been linked with depressive symptoms but the effects of the interplay between the built and social environments on mental health remain unclear.

Many U.S. Latinos live in communities with unsatisfactory built environmental features, including old and overcrowded housing, limited access to parks and recreational facilities, and excessive traffic<sup>5,6</sup>. These conditions, in turn, inhibit healthy lifestyles (e.g., active living)<sup>5</sup> and can indirectly trigger psychological distress through low perceived social support<sup>7</sup>. One environmental condition that has received growing attention relative to mental health is the presence of parks and recreational facilities, which provide opportunities for engaging in physical activity (PA)<sup>8</sup> and promote psychological health<sup>9</sup>. Urban park use, for example, has been shown to provide social benefits through improved social interactions and place attachment.<sup>10</sup> Furthermore, safe parks have been found to provide social and emotional support for PA among female users<sup>11</sup>, and regular use of parks or recreational facilities can help promote healthy living and physical and/or mental health through participation in leisure time PA. This, in turn, can help reduce the risk of depression and other health conditions<sup>12,13</sup>.

In addition to the built environment, several social conditions of neighborhoods have been linked to mental health. Neighborhood disorder, poverty, high crime rates, and low social cohesion, for example, have been linked to psychological distress among racially/ethnically diverse community residents.<sup>7,14–16</sup> Neighborhood social cohesion is characterized by the presence of trusting relationships with individuals in one's community.<sup>17</sup> A prospective study examining the impact of neighborhood disorder and depression found that perceptions of negative neighborhood characteristics (e.g., vandalism, litter/trash, vacant housing, and illegal drug sales) predicted depressive symptoms among residents at 9-months follow-up.<sup>18</sup>

Other social factors related to depression include low neighborhood socio-economic status (SES) and perceived violence.<sup>14,16,19,20</sup>

Conversely, several protective factors for depression have also been reported. For example, neighborhood family structures (specifically the presence of more married couples and fewer single mothers) is a social support factor linked to fewer depressive symptoms.<sup>14</sup> Furthermore, Mair and colleagues<sup>14</sup> suggest that the link between perceived neighborhood social factors and depression differs by gender. Among men, depression was significantly associated with greater perceived neighborhood disorder. In women, depression was significantly associated with lower perceived social cohesion, reciprocal exchange (i.e., sharing of information with others), and residential stability. Neighborhood social cohesion can play an important role in health. For example, community social support and the sharing of information with others may help improve access to social and health services.<sup>21,22</sup> In addition to playing a protective role for depression, neighborhood social cohesion has been linked to PA behaviors. A pilot PA intervention in San Diego County found that increased levels of perceived neighborhood social cohesion were related to increases in leisure time PA among a sample of Latina women.<sup>23</sup> Although studies point to a negative relationship between social cohesion and depression and a positive link between social cohesion and PA, the role of PA on the relationship between neighborhood cohesion and depression are unknown. There is evidence pointing to a potential dose-response relationship of adhering to recommended amounts of moderate-intensity physical activity with fewer depressive symptoms<sup>24</sup>, thus examining the association between engaging in the recommended levels of physical activity, as per the Physical Activity Guidelines for Americans (PAGA), and depressive symptoms is warranted. The PAGA recommends that to reap the health benefits of PA, adults (18 years of age and older) should engage in at least 150 minutes of moderate-intensity aerobic PA a week, at least 75 minutes of vigorous-intensity aerobic PA a week, or an equivalent combination of both.<sup>25</sup>

To address the aforementioned research gaps, the first aim of this study was to assess whether or not engaging in the recommended levels of moderate-to-vigorous physical activity during leisure time (LTMVPA) moderated the association between neighborhood social cohesion and depression. The second aim of the study was to examine whether or not using parks or recreational facilities for PA (i.e., active use) moderates the association between neighborhood social cohesion and depression.

## METHODS

### Study setting and population

This cross-sectional study used data collected between June and September 2009 in the San Diego Prevention Research Center's (SDPRC) Community Survey. The survey examined self-reported quality of life, PA behaviors, and other health indicators among a sample of Latino adults (aged 18 years) living in the southernmost communities of San Diego County proximate to the U.S.-Mexico border (including San Ysidro, Chula Vista, National City, and Imperial Beach).

Nearly one third of the population in San Diego County is Latino,<sup>1</sup> with higher proportions being represented in the four most southern communities: 93% in San Ysidro, 58% in Chula Vista, 63% in National City, and 49% in Imperial Beach.<sup>26</sup> In these communities, the median population age ranges between 25.4 and 33.4 years. Educational attainment varies considerably, with 50% of adult residents in San Ysidro and 82% in Chula Vista having attained a high school degree or higher.<sup>1</sup> These communities are also economically disadvantaged, with the annual median household income in three of the communities well below the national average of \$51,017 (2012 estimate) and only Chula Vista having a higher annual median household income (i.e., \$65,526).

## Sampling

We used multistage sampling methods to select a representative sample of eligible individuals from the four target communities. Demographic data and geographic boundaries from the U.S. Census Bureau were used to identify the target region. The geographic boundaries for the target region were National City (north-east), the U.S.-Mexico border (south), and the Pacific Ocean (west). Census blocks, the smallest geographic unit provided by the U.S. Census Bureau that is geographically delimited by streets or natural features, were used to define neighborhoods. Of the total 1,958 blocks selected within the target region, a random sample of 200 census blocks with at least one individual and at least one household were selected. These 200 blocks included 100 blocks from National City and an additional 100 from San Ysidro, Chula Vista, and Imperial Beach combined. Trained research assistants (RAs) canvassed the 200 selected census blocks, listing the addresses of the housing units and other buildings in each block. To ensure reliability and accuracy, the list of houses per block was compared to the original counts in the 2000 Census. All houses in the list were enumerated and a skip pattern (based on the total number of housing units in each community) was used to select a random sample of 2,400 houses (i.e., every third house for National City and every fifth house for Chula Vista, Imperial Beach, and San Ysidro). Response rates from two previous studies<sup>27–29</sup> that applied similar sampling methodology and involved Latinos in Los Angeles and Boston were used to calculate the number of houses needed to reach the desired sample size. An additional random sample of 1,723 addresses from census blocks that had large concentrations of households with adequate response rates was selected to reach our desired sample size.

## Recruitment and data collection

Trained RAs visited the randomly selected households up to three times to confirm eligibility and to recruit the household for study participation. Household eligibility included having at least one member living in the household (for at least four days a week) who self-identified as Latino. Then, the RA recruited the adult with the most recent birthday to complete the assessment protocol. Eligible individuals included those least 18 years of age who self-identified as Latino and lived in the house for at least four days a week. After explaining the study objectives and procedures, RAs obtained verbal consent from the participating household member.

Two bilingual, bicultural RAs administered the face-to-face interview in the respondent's preferred language (i.e., English or Spanish) and measured the respondent's height and

weight using standard protocols. Of the 4,279 randomly selected households, 64.9% were eligible to participate. The final study sample included 397 individuals who completed the interview, yielding a response rate of 12.6% and a refusal rate of 40.1%. Institutional Review Boards at San Diego State University and the University of California, San Diego approved this study.

## Measures

The scales for depressive symptoms, physical activity, and neighborhood social cohesion were available in Spanish and have been validated with Latino populations.

### Depressive symptoms

Respondents self-reported the frequency of cognitive, affective, and somatic symptoms of depression over the past two weeks using the Patient Health Questionnaire-9 (PHQ-9)<sup>30</sup>. The range of responses for each of the nine items was from 'not at all' (0) to 'nearly every day' (3). A sum score determined each participant's level of depressive symptoms based on standard cutpoints<sup>31</sup>: none to minimal (0–4), mild (5–9), moderate (10–14), moderately severe (15–19), and severe (20–27). The scale has shown good reliability and validity as a measure of depression severity.<sup>30</sup> In addition, a one-factor structure was found with equivalent response patterns and variances among both English and Spanish speaking Latinos.<sup>32</sup> An additional study using these data showed good internal consistency of the PHQ-9 scale with a Cronbach coefficient alpha of 0.83.<sup>33</sup> We dichotomized scores into two groups using a clinically meaningful cut-off: respondents with no-to-mild depression (scores of 0–9; n=261) and those with moderate-to-severe depression (scores ≥ 10; n=32). A score of 10 or higher has a sensitivity of 88% and specificity of 88% for diagnosing major depression, using mental health professional interviews as the criterion standard.<sup>30</sup> We used the dichotomous depression variable as the dependent variable in the analyses. Other studies have also used dichotomized depression scores based on clinically relevant cut-offs<sup>34–36</sup> and one study found quantitatively similar results using the continuous and dichotomized scores<sup>36</sup>.

RAs involved in data collection were trained to inform the Project Manager in the event a participant reported any suicide ideation (from several days to nearly every day) during the previous two weeks or experiencing any of the nine symptoms nearly every day. In cases where suicide ideation was endorsed, the Project Manager was instructed to inform the Principal Investigator immediately or within 24 hours (if not available immediately). The Principal Investigator (a clinical psychologist), was then to call the participant and refer him/her to several agencies (e.g., the suicide hotline). In cases where one or more of the nine items were identified as occurring nearly every day, the Project Manager was instructed to calculate the full scale score and to again refer the case to the Principal Investigator for a similar follow-up procedure if the score fell into the moderate to severe depression category (score ≥ 10).

### Physical activity

Respondents reported their minutes of moderate- and vigorous-intensity physical activities they accrued during a typical week using the Global Physical Activity Questionnaire

(GPAQ)<sup>37</sup>. Items assessed PA in the following domains: leisure time, occupational/household chores, and transport. For this study, we focused on the 6 items that assessed moderate-to-vigorous-intensity PA during leisure time (LTMVPA) to examine levels of aerobic PA in accordance with the Physical Activity Guidelines for Americans<sup>25</sup>. The first 3 items focused on vigorous-intensity PA, asking respondents whether or not they did any vigorous-intensity sports, fitness, or recreational (leisure) activities that cause large increases in breathing or heart rate for at least 10 minutes continuously, and if yes, for how many days and how much time they spent doing these activities in a typical week. Similarly, the next 3 questions focused on moderate-intensity activities that cause small increases in breathing or heart rate for at least 10 minutes continuously. The items were analyzed using the standard GPAQ protocol to obtain total LTMVPA minutes per week for each respondent. The GPAQ scale has been validated against the International Physical Activity Questionnaire in diverse groups ( $r = 0.54$ )<sup>37</sup> and accelerometers involving Latinas ( $r = 0.38$ )<sup>38</sup>. Although the GPAQ demonstrates low to moderate validity, the instrument has been used in various countries and serves as an acceptable tool for assessing PA because of low cost, ease of administration, and adaptability with diverse populations.<sup>39</sup>

Using the estimated LTMVPA data, we created a binary variable that represented meeting the recommendations in the 2008 Physical Activity Guidelines for Americans<sup>25</sup>.

Respondents were categorized as “meeting the LTMVPA recommendations” if they reported

150 minutes of moderate-intensity leisure time PA/week, 75 minutes of vigorous-intensity leisure time PA/week, or a combination of both. Those reporting less than these amounts were categorized as “not meeting the LTMVPA recommendations.” The recommended LTMVPA amount is based on evidence showing improved health (e.g., fitness, bone health, reduced risk of non-communicable chronic diseases) when meeting these recommended levels. The categorization is further supported by the data given that minutes of LTMVPA were not normally distributed in this sample.

### **Active use of parks or recreational facilities**

Active use of parks or recreational facilities for PA was measured using one question adapted from the 2006 SDPRC community survey<sup>40</sup> and previously used with the Sumter-County study in South Carolina<sup>41</sup>. Respondents answered yes or no to whether, in the past year, they used a park or recreational facility in their community for PA.

### **Neighborhood social cohesion**

Self-reported neighborhood social cohesion was measured by assessing the level of agreement with five items adapted from a validated scale on collective efficacy, a combination of social cohesion among neighbors and their willingness to take action for a common good<sup>42,43</sup>. A study from Los Angeles that had 58% Latino respondents reported high reliability of the collective efficacy scale with a Cronbach coefficient alpha of 0.77.<sup>42</sup> The following items were asked: (a) “This is a close-knit neighborhood;” (b) “People around here are willing to help their neighbors;” (c) “People in this neighborhood generally don’t get along with each other;” (d) “People in this neighborhood do not share the same values;” and (e) “People in this neighborhood can be trusted.” Response options ranged from ‘1=strongly disagree’ to ‘5=strongly agree’. Questions 3 and 4 were reverse-coded for ease



of interpretation and a mean score was calculated with higher scores indicative of higher neighborhood social cohesion.

## Demographics

We measured demographic characteristics, including age, gender, marital status, country of birth, and education using questions taken from a previous survey<sup>44</sup>. Categories were created for age (i.e., 18–29, 30–44, 45–59, and 60 years); marital status (i.e., married or living as married vs. single or non-partnered); country of birth (i.e., USA vs. Mexico or other country); and education completed (less than high school vs. high school or higher). We adapted the household income question from the American Community survey<sup>45</sup> and categorized annual income as follows: less than \$20,000; \$20,000–39,999; \$40,000–49,999; and \$50,000 or more.

## Data analyses

We applied multivariate logistic regression to model level of depressive symptoms (no to mild vs. moderate to severe) as the outcome of interest with each of the following explanatory variables: neighborhood social cohesion (continuous score), active use of parks or recreational facilities (yes/no), and meeting LTMVPA recommendations (yes/no). Odds ratios (OR) and 95% confidence intervals (CIs) were obtained to examine the independent moderating roles of active use of parks or recreational facilities and meeting the LTMVPA recommendations on the relationship between neighborhood social cohesion and depressive symptoms. That is, two separate models were tested with one model involving an interaction term between neighborhood social cohesion and active use of parks or recreational facilities and the second model involving an interaction term between neighborhood social cohesion and meeting LTMVPA recommendations. All models controlled for age, gender, and household income. Results of exploratory analyses using the continuous LTMVPA variable (minutes/week) were similar to the dichotomous variable results (data not shown).

Of the entire sample (N=397), approximately 75% provided a response to the income question. Because neighborhood poverty has been linked to mental health disorders<sup>16,19,46</sup>, income was deemed relevant to use as a covariate in the tests of association. Chi-square tests were performed to compare those who reported income versus those who did not on demographic characteristics, depressive symptoms, neighborhood social cohesion scores, LTMVPA, and active use of parks or recreational facilities. Results showed no statistically significant differences between the groups with the exception of gender (more women did not report income). Because we found no significant differences between the two groups on the main variables of interest, we performed subsequent analyses on the sample that reported income (n=295; 201 females, 94 males). In addition, higher rates of moderate-to severe depressive symptoms were expected among women compared to men<sup>2</sup> and higher rates of meeting the LTMVPA recommendations were expected among men compared to women<sup>47</sup>, thus gender-specific associations were examined using stratified analyses. Due to the small sample size of the male subgroup, however, there was insufficient power to obtain valid estimates and thus overall sample associations are presented. All statistical analyses were performed in SAS version 9.2 (SAS Institute Inc., Cary, North Carolina).

## RESULTS

### Descriptive statistics

The majority of respondents were female (68.1%), married or living as married (61.4%), born in Mexico or another foreign country (78.3%), had less than a high school education (54.6%), were between 30 and 44 years of age (35.2%), and had a household income less than \$20,000 (52.5%) (Table 1). A majority of the sample was classified as having no-to-minimal depression (65.2%), followed by mild depression (23.9%), with a few classified as having moderate depression (6.8%), moderately severe (3.1%) or severe (1.0%) depression (data not shown). The prevalence of moderate to severe depression was higher among Latina women (13.5%) than men (5.4%) (Table 1). About two-thirds reported using a park or recreational facility for PA during the past year (men: 68.1%; women: 60.7%) (Table 1). Only 29.9% were classified as meeting the LTMVPA recommendations, with a lower prevalence among Latina women (22.9%) than men (45.2%) (Table 1). The neighborhood social cohesion scores ranged from 1.0 to 5.0, with a mean and standard deviation of  $3.3 \pm 0.8$  (men:  $3.4 \pm 0.7$ ; women:  $3.2 \pm 0.8$ ) (Table 1).

### Depressive symptoms, neighborhood social cohesion, active use of parks or recreational facilities, and meeting LTMVPA recommendations

Although not statistically significant, those reporting higher neighborhood social cohesion were less likely to have moderate to severe depression than peers who reported lower neighborhood social cohesion (Table 2). Depressive symptoms were also not significantly associated with meeting the LTMVPA recommendations or active use of parks or recreational facilities (Table 2). However, we found that active use of parks or recreational facilities moderated the association between neighborhood social cohesion and depressive symptoms (Table 3). Those who reported using parks or recreational facilities for PA were significantly less likely to have moderate to severe depression with every unit increase in neighborhood social cohesion score (OR = 0.5, 95% CI: 0.3–0.9). Meeting the LTMVPA recommendations did not moderate the association between neighborhood social cohesion and depressive symptoms.

## DISCUSSION

This is the first study to demonstrate that among Latino adults, greater perceived neighborhood social cohesion and use of community resources for PA (i.e., parks/recreational facilities) may protect against depressive symptoms. Those who reported using parks or recreational facilities for PA and who reported higher levels of neighborhood social cohesion also reported fewer depressive symptoms than their counterparts. Similar associations were not found with engaging in recommended levels of PA during leisure-time, suggesting the beneficial health effects of PA on mental health may depend on the context in which activity takes places (i.e., physical setting and levels of social connectedness), at least among Latinos. In addition, consistent with national data<sup>2,48</sup>, we found an 10.9% prevalence of moderate-to severe depressive symptoms among this sample of Latino adults and a higher rate among women compared to men.



From an ecological perspective, several social and built environmental factors could explain these findings. Individuals not using parks or recreational facilities for PA may not be aware of facilities in their community to be active or have access to them.<sup>49,50</sup> Lack of opportunities for PA in the community may, in turn, reduce opportunities for interactions with neighbors, an important component to building neighborhood social cohesion.<sup>14</sup> When access to parks or recreational facilities is not a barrier, other barriers or neighborhood stressors may prevent residents from using these spaces, such as fear of immigration enforcement<sup>51</sup>; not having someone to exercise with<sup>52</sup>; and being discouraged from exercising by others<sup>53,54</sup>. Other barriers may include perceived problems or concerns related to the community's social environment (e.g., graffiti, vandalism, and presence of homeless), as well as the built environment (e.g., no restrooms in the park, inadequate playground facilities, park entrance not visible, overgrown bushes, and low lighting)<sup>51</sup>. The current study did not examine these barriers or neighborhood stressors to using PA resources in the community, but assessing the presence of these factors through environmental audits might reveal the extent to which these environmental factors influence use of parks or recreational facilities for PA, levels of neighborhood social cohesion, and mental health among residents.

Overall, our findings suggest that active use of parks or recreational facilities plays a role in the association between neighborhood social cohesion and depressive symptoms. Those who used parks or recreational facilities for PA and had high levels of neighborhood social cohesion were less likely to have moderate to severe depression compared to those who did not use these spaces for PA. Similar findings were not observed for meeting the LTMVPA recommendations. A possible explanation for this lack of moderation is that self-reported PA captures only individual-level dimensions of PA (i.e., PA by domain, frequency, and intensity-levels) while ignoring social dimensions, such as social interactions between individuals and the reciprocal exchange of PA information that can occur during exercise. To date, no study that we are aware of has examined the roles of individual-level PA and the social context in which PA takes place on neighborhood social cohesion and health outcomes. As the self-report measures were not designed to capture the context in which PA and social interactions occurred, other measures, such as direct observation methods, may serve as valuable tools for the simultaneous assessment of individual PA patterns and social interactions during exercise.

## Limitations

Because the study was cross-sectional, we cannot infer that neighborhood social cohesion led to fewer depressive symptoms or vice versa. However, our results are similar to those of another study that found that neighborhood perceptions predicted mental health outcomes over time<sup>18</sup> and a second study showing a dose-response relationship between engaging in any form of daily PA (particularly sport) and a lower risk of psychological distress<sup>55</sup>. Another limitation of this study is that active use of parks or recreational facilities during the past year was determined using only one question. The question captured information on whether the respondent used the space for PA at least once during the past year, but it precludes an evaluation of the frequency of use, the amount of time and levels of activity intensity engaged there, social support for using the spaces, and other factors related to the spaces. In addition, although males and females showed differences for depressive

symptoms and meeting the LTMVPA recommendations, the small sample size of each subgroup (males in particular) reduced statistical power substantially thereby limiting our ability to perform gender-specific analyses.

We also acknowledge that the study's response rate of 12.6% is low compared to national surveys of Latino populations (e.g., the Hispanic Community Health Study/Study of Latino [HCHS/SOL] reports a household-level response rate of 33.5%). However, our response rate is not unusual for a study that includes legal and unauthorized migrants. Non-response rates for household surveys, particularly those that include unauthorized immigrants, historically have been high.<sup>29</sup> San Diego County has one of the highest numbers of unauthorized immigrants (approximately 180,000 according to the Public Policy Institute of California) and having an unauthorized status may dissuade one to participate in a household survey. Although most people argue that a high nonresponse rate increases the probability of nonresponse bias, a recent review of the link between nonresponse rates and nonresponse bias found little empirical evidence for this argument<sup>56</sup>. We were unable to identify a minimum response rate below which survey estimates are subject to bias. Nevertheless, nonresponse bias does exist and is expected to vary across estimates within a survey.<sup>56</sup> Comparing our estimates to those obtained in other health surveys may provide some evidence that our study sample was not disproportionately biased compared with other published research. For example, in our study, we found a prevalence of 10.9% for moderate to severe depressive symptoms, which is comparable to the 10.1% found among Mexican-Americans in a national household-level survey (NHANES 2005–2006) using the PHQ-9<sup>48</sup>.

Despite the aforementioned limitations, we believe that this is the first study to examine the association between neighborhood social cohesion and depressive symptoms among U.S. Latinos. As the study sample involved primarily Mexican descendants, the largest subgroup of Latinos in the U.S., the findings are generalizable to a key group that could benefit from programs and policies that promote the active use of parks or recreational facilities for supporting mental health. Future studies examining gender-specific associations are also warranted.

## Conclusions

Given the potentially important contribution of the active use of parks or recreational facilities to the association between neighborhood social cohesion and mental health, the promotion of the use of these community resources may also contribute to better physical and mental health in Latino communities. Using parks and other public recreational facilities can offer a low-cost resource for the accrual of PA by underserved community members who may not have access to or cannot afford memberships to gyms or other PA facilities.<sup>44</sup> Parks also have certain features that can yield key social benefits, such as walking trails, playgrounds, and picnic areas, which may help facilitate social interactions. To date, there is insufficient evidence to suggest that environmental interventions, such as building new or enhancing existing parks are effective in Latino communities. Nevertheless, public health efforts that promote use of existing PA spaces for being active have shown promise for changing PA behaviors in Latinos.<sup>57</sup>

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**Table 1**

Descriptive characteristics of Latino adult respondents (≥ 18 years), by gender and overall (N=295), SDPRC, 2009.

Variable	Male (n=94) n (%)	Female (n=201) n (%)	Total (N=295) n (%)
Age (years) <sup>a</sup>			
18–29	17 (18.3)	43 (21.5)	60 (20.5)
30–44	31 (33.3)	72 (36.0)	103 (35.2)
45–59	24 (25.8)	46 (23.0)	70 (23.9)
60	21 (22.6)	39 (19.5)	60 (20.5)
Marital status			
Married or living as married	67 (71.3)	87 (43.3)	181 (61.4)
Single or non-partnered <sup>b</sup>	27 (28.7)	114 (56.7)	114 (38.6)
Country of birth			
USA	21 (22.3)	43 (21.4)	64 (21.7)
Mexico or other country	73 (77.7)	158 (78.6)	231 (78.3)
Highest education completed			
< High school	50 (53.2)	111 (55.2)	161 (54.6)
High school	44 (46.8)	90 (44.8)	134 (45.4)
Total household income			
\$0–\$19,999	37 (39.4)	118 (58.7)	155 (52.5)
\$20,000–\$39,999	33 (35.1)	55 (27.4)	88 (29.8)
\$40,000–\$49,999	12 (12.8)	12 (6.0)	24 (8.1)
\$50,000 or more	12 (12.8)	16 (8.0)	28 (9.5)
Depressive symptoms <sup>a</sup>			
No to mild	88 (94.6)	173 (86.5)	261 (88.5)
Moderate to severe	5 (5.4)	27 (13.5)	32 (10.9)
Neighborhood social cohesion score, mean ± SD	3.4 ± 0.7	3.2 ± 0.8	3.3 ± 0.8
Active use of parks or recreational facilities (yes)	64 (68.1)	122 (60.7)	186 (63.1)
Meets LTMVPA recommendations (yes)	42 (45.2)	46 (22.9)	88 (29.9)

SDPRC = San Diego Prevention Research Center

<sup>a</sup>Missing=2.

<sup>b</sup>Includes divorced, widowed, and separated.



**Table 2**

Association of depressive symptoms with neighborhood social cohesion, meeting the LTMVPA recommendations, and active use of parks or recreational facilities (N=295), SDPRC, 2009.

Variable	Unadjusted OR (95% CI)	Adjusted <sup>a</sup> OR (95% CI)
Neighborhood social cohesion score <sup>†</sup>	0.7 (0.5–1.2)	0.8 (0.5–1.2)
Active use of parks or recreational facilities		
No	0.7 (0.3–1.6)	0.7 (0.3–1.6)
Yes	1.0	1.0
Meets LTMVPA recommendations		
No	1.6 (0.7–3.9)	1.3 (0.5–3.3)
Yes	1.0	1.0

SDPRC = San Diego Prevention Research Center

LTMVPA = leisure time moderate-to-vigorous physical activity

<sup>†</sup>  
 $p < 0.10$

<sup>a</sup> Odds ratios are adjusted for age, gender, and income.

**Table 3**

Moderators of the association between neighborhood social cohesion and depressive symptoms (N=295), SDPRC, 2009

Variable	Unadjusted OR (95% CI)	Adjusted <sup>a</sup> OR (95% CI)
Active use of parks or recreational facilities <sup>*</sup>		
No	1.8 (0.8–4.1)	1.7 (0.7–3.8)
Yes	0.5 (0.3–0.9)	0.5 (0.3–0.9)
Meets LTMVPA recommendations		
No	1.0 (0.6–1.6)	1.0 (0.6–1.7)
Yes	0.4 (0.2–0.9)	0.4 (0.2–1.0)

SDPRC = San Diego Prevention Research Center

LTMVPA = leisure time moderate-to-vigorous physical activity

<sup>\*</sup>  
 $p < 0.05$

<sup>a</sup> Odds ratios are adjusted for age, gender, and income.